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**A Listing of the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application.

13. (previously presented): A method of obtaining photochromic latex comprising:
preparing a mixture comprising at least one organic monomer Z, which monomer comprises at least one C=C group and is polymerizable by a radical process, at least one organic photochromic compound, at least one surfactant, and water;
forming a miniemulsion of the mixture, the miniemulsion comprising an organic phase dispersed in an aqueous phase in the form of droplets having a diameter of 50 to 500 nm;
adding a polymerization primer to the mixture before, during, or after forming the miniemulsion;
polymerizing of the reaction mixture, and
recovering photochromic latex.

14. (previously presented): The method of claim 13, wherein the polymerization primer is mixed with the other components of the mixture before formation of the miniemulsion.

15. (previously presented): The method of claim 14, wherein additional polymerization primer is added to the mixture after formation of the miniemulsion.

16. (previously presented): The method of claim 13, wherein the polymerization primer is mixed with the other components of the mixture after formation of the miniemulsion.

17. (previously presented): The method of claim 13, further comprising degassing the miniemulsion before the addition of the polymerization primer.

18. (previously presented): The method of claim 13, wherein the polymerization primer is added to the mixture during the formation of the miniemulsion.

19. (cancelled).

20. (previously presented): The method of claim 13, wherein the organic phase is dispersed in the aqueous phase in the form of droplets having a diameter of 50 to 300 nm.

21. (previously presented): The method of claim 13, wherein the organic monomer Z is an alkyl (meth) acrylate.

22. (previously presented): The method of claim 13, wherein the photochromic compound is a chromene or spirooxazine.

23. (previously presented): The method of claim 13, wherein the Z monomer is an alkyl methacrylate and the photochromic compound is a spirooxazine.

24. (previously presented): The method of claim 13, wherein the mixture further comprises at least one stabilization agent.

25. (previously presented): The method of claim 24, wherein the stabilization agent is an n-alkane, a halogenated n-alkane, a fatty alcohol, or an ester of a fatty alcohol.

26. (previously presented): The method of claim 25, wherein the stabilization agent is hexadecane, cetyl alcohol, or stearyl methacrylate.

27. (previously presented): The method of claim 13, wherein the polymerization primer is soluble in the aqueous phase or in the organic phase.

28. (previously presented): The method of claim 27, wherein the polymerization primer is azobisisobutyronitrile or 2,2'-azobis (2-amidinopropane) dihydrochloride or sodium persulfate.

29. (previously presented): The method of claim 13, wherein formation of the miniemulsion comprises passing the mixture through a microfluidizing apparatus.

30. (previously presented): A photochromic latex prepared by a method comprising:

preparing a mixture comprising at least one organic monomer Z, which monomer comprises at least one C=C group and is polymerizable by a radical process, at least one organic photochromic compound, at least one surfactant, and water;

forming a miniemulsion of the mixture, the miniemulsion comprising an organic phase dispersed in an aqueous phase in the form of droplets having a diameter of 50 to 500 nm;

adding a polymerization primer to the mixture before, during, or after forming the miniemulsion;

polymerizing of the reaction mixture, and

recovering photochromic latex.

**A Response to the Office Action Dated June 2, 2003:**

**A. Status of the Claims**

Claims 13-18 and 20-30 were pending at the time the Office Action dated June 2, 2003 was mailed to Applicants. No amendments to the claims have been made. Claims 13-18 and 20-30, therefore, are currently pending.

**B. The Obviousness Rejection is Overcome**

**1. A Summary of the Rejection, the Standard for Establishing a *prima facie* case of obviousness, and Applicants' Claimed Invention**

***i. A summary of the rejection***

The Action rejects claims 13-18, 20-22, 24, 25, 27, 28, and 30 under 35 U.S.C. § 103(a) as being obvious over Maisonnier *et al.* The Action also rejects claim 29 under 35 U.S.C. § 103(a) as being obvious over Maisonnier *et al.* in view of U.S. Patent No. 5,731,379 to Kennan *et al.* In making these obviousness rejections, the Action admits that the primary reference, Maisonnier *et al.*, fails to teach or suggest the formation of a miniemulsion. The Action, page 3.

In an attempt to supplement the deficient teachings of Maisonnier *et al.*, the Action states that "the skilled artisan would have reasonable basis to believe that the process described in Maisonnier *et al.* is essentially the same as that recited in present claim 13 and 20." *Id.* The only evidence cited by the Action to support such a contention is the Action's own statement that "[s]uch a notion is obvious in view of the fact that both processes use the same materials to produce latices having the same particle size." *Id.* Stated another way, the Action incorrectly assumes, without presenting any evidence, that the aqueous emulsion mentioned in Maisonnier *et al.* must be prepared by a miniemulsion process because the final polymerized latex particles of Maisonnier *et al.* have a similar size to the final polymerized latex particles of the present invention.

Applicants traverse this rejection for many reasons. Claims 13-18, 20-22, 24, 25, 27, 28, 29 and 30 are not rendered obvious over the teachings of Maisonnier *et al.* alone, or in combination with Kennan *et al.*

***ii. The standard for establishing a prima facie case of obviousness***

It is well settled that "[t]he examiner bears the initial burden of factually supporting any *prima facie* case of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under ***no*** obligation to submit evidence of non-obviousness." *Manual of Patent Examining Procedure* (MPEP) § 2142 (8th Ed. Rev.) (emphasis added).

To establish a *prima facie* case of obviousness, the Examiner must show: (1) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) a reasonable expectation of success; and (3) the prior art reference teaches or suggests all of the claim limitations. MPEP § 2142; *see also In re Vaeck*, 947 F.2d 488. With respect to the motivation to modify the reference requirement, the MPEP states "[t]he mere fact that references ***can be*** combined or ***modified*** does not render the resultant combination obvious unless ***the prior art also suggests the desirability*** of the combination." MPEP § 2143.01 (emphasis added).

If any one of the three elements is missing, a *prima facie* case of obviousness cannot be established and any obviousness rejections must, therefore, be withdrawn.

***iii. Applicants' claimed invention***

Applicants presently claim:

> A method of obtaining photochromic latex comprising: preparing a mixture comprising at least one organic monomer Z, which monomer comprises at least one C=C group and is polymerizable by a radical process, at least one organic photochromic compound, at least one surfactant, and water; ***forming a miniemulsion of the mixture***, the miniemulsion comprising an organic phase

dispersed in an aqueous phase in the form of droplets having a diameter of 50 to 500 nm; adding a polymerization primer to the mixture before, during, or after forming the miniemulsion; polymerizing of the reaction mixture, and recovering photochromic latex.

See claim 13 (emphasis added). Applicants also claim the corresponding photochromic latex (claim 30).

**2. The Action has not Presented Any Evidence to Support the Obviousness Rejection**

As an initial matter, it should be noted that the Action has not presented any evidence to support the present obviousness rejection. Despite the Action's unsubstantiated opinion that a person of ordinary skill in the art would have a reasonable basis to believe that the process described in Maisonnier *et al.* is essentially the same as the presently claimed invention, the Action does not provide any basis to support such a contention. In fact, the Action's own opinions that that the process disclosed in Maisonnier *et al.* and Applicants' claimed process use the ***same materials*** misses the point. Applicants claim a different ***process*** of obtaining a photochromic latex ("forming a miniemulsion") than the process disclosed in Maisonnier *et al.* (non formation of a miniemulsion).

Based on the lack of evidence alone, the present obviousness rejection must fall. *See* MPEP § 2142 ("The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under ***no obligation*** to submit evidence of nonobviousness"). If the Action is relying on personal knowledge or any reference to support the present obviousness rejection, Applicants must request that the Examiner prepare an affidavit and enter it into the file history of this application pursuant to 37 C.F.R. § 1.104(d)(2).

Accordingly, Applicants request that the present obviousness rejection of claims 13-18, 20-22, 24, 25, 27, 28, 29, and 30 be withdrawn.

### 3. A *Prima Facie* case of Obviousness has not Been Established by the Action

In order to establish a *prima facie* case of obviousness, the cited reference must teach every element of the present invention. *See* MPEP § 2142. This has not been done. As admitted by the Action, Maisonnier *et al.* fails to teach the use of forming a miniemulsion. *See* the Action, page 3. Rather, Maisonnier *et al.* is directed towards a process for the preparation of a photochromic latex that includes the use of a traditional emulsion rather than a miniemulsion. *See* Maisonnier *et al.*, generally.

Moreover, the Action's assumption that the aqueous emulsion mentioned in Maisonnier *et al.* must be a miniemulsion because the final polymerized latex particles of Maisonnier *et al.* have a similar size than the final polymerized latex particles of the present invention is not grounded on any technical support and is in fact technically incorrect. To begin, Applicants' present invention defines the miniemulsion as having a dispersed organic phase droplets of 50 to 500 nm. By contrast, there is no indication of the dispersed organic phase droplets in Maisonnier *et al.*

Additionally, and contrary to the Action's unsupported assumptions, there is ***no*** direct relationship between the size of the final polymerized latex particles and the type of emulsion process used, *i.e.*, conventional emulsion or miniemulsion. *See*, Exhibit 1, the Maisonnier Declaration, ¶¶ 1 and 2. The Maisonnier Declaration evidences the fact that the polymerization of a latex starting from a conventional or a miniemulsion proceeds through two different mechanisms. *Id.* As stated in the Declaration, polymerization using a conventional non-miniemulsion includes:

> In a conventional emulsion, the initial monomer particles containing a photochromic compound (1) typically have a size of 1 to 10 $\mu$m.
>
> These monomer particles are surrounded by surfactant (2).

> Due to the presence of the surfactant, the initial emulsion also contains very small micelles (3) of monomer having a size from 5 to 10 nm.
>
> The polymerization starts in the micelle and proceeds until obtention of the final polymerized latex particles which typically have particle size of 150 to 250 nm.
>
> In this emulsion polymerization, the initial monomer particles containing a photochromic compound disappear by feeding the much smaller micelles, during the growth of these micelles, where the monomer polymerization takes place.

Maisonnier Declaration, ¶ 1.

In contrast to the convention method, emulsion polymerization using a miniemulsion proceeds as follows:

> In a miniemulsion, the dispersed monomer particles (1') containing the photochromic compound have a size ranging from 50 to 500 nm, typically around 200 nm.
>
> These monomer particles (1') are also surrounded by surfactant particles (2').
>
> However, in that case, in the present of surfactant and the free radicals, the monomer polymerization takes place directly in the initial dispersed monomer particles to produce final latex particles having a size typically ranging from 200 to 250 nm.

Maisonnier Declaration, ¶ 2.

Thus, it is evident that the traditional emulsion polymerization process is quite different from the non traditional miniemulsion polymerization process. In fact, the emulsion polymerization mechanisms are briefly reported in "Latices," Encyclopedia of Polymer Science and Engineering, 1987, Vol. 8 LATICES, p. 660: Micellar nucleation/Nucleation in monomer droplets." This reference was cited by the Action in the first Office Action dated December 19, 2002.

In view of the above evidence, and contrary to the Action's unsupported opinions, it cannot be inferred that because the final polymer particles of Maisonnier *et al.* are of a similar particle size to Applicants' claimed latexes, that the polymerization emulsion process is the same. In fact, as discussed in the Maisonnier Declaration, this is not the case.

Consequently, the cited references neither discloses nor suggests the use of a miniemulsion for preparing a photochromic latex. Because each and every element of Applicants' claimed invention is not taught or suggested by the Action, a *prima facie* case of obviousness has not been established.

Accordingly, Applicants request that the rejection of claims 13-18, 20-22, 24, 25, 27, 28, and 30 as being obvious over Maisonnier *et al.* be withdrawn.

**4. The Obviousness Rejection to Claim 29 is Overcome**

As noted above, the Action further rejects claim 29 as being obvious over Maisonnier *et al.* in view of Kennan *et al.* Applicants traverse this rejection.

Because claim 29 depends from claim 13, claim 29 is patentable for at least the same reasons as discussed in the above sections of this response. For this reason, the arguments made in the above sections are incorporated into this section by reference.

Additionally, Applicants note that Kennan *et al.* does not address miniemulsion polymerization of a monomer containing a photochromic compound. Thus, a person of ordinary skill in the art would not find any motivation in Kennan *et al.* to use a miniemulsion polymerization as claimed in present claim 29.

Accordingly, Applicants request the rejection of claim 29 as being obvious over Maisonnier *et al.* in view of Keenan *et al.* be withdrawn.

**C. Conclusion**

Applicants believe that the present document is a full and complete response to the Office Action dated June 2, 2003. In conclusion, Applicants submit that, in light of the foregoing remarks, the present case is in condition for allowance, and such favorable action is respectfully requested.